

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appl. No. : 10/763,495
Applicant : Hiroshi Haji
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Title : METHOD FOR MOUNTING ELECTRONIC PARTS
ONTO A BOARD

Conf. No. : 6999
TC/A.U. : 3729
Examiner : Tai V. Nguyen

Customer No. : 000116
Docket No. : 34915US1

LETTER REGARDING PATENT PRINTING ERRORS

Commissioner of Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

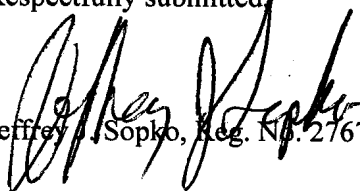
In proofreading the referenced patent, typographical errors were noted. It is not believed that these errors require a Certificate of Correction. However, it is respectfully requested that this letter, along with the supporting documentation, be placed in the file for this case.

The following errors were noted:

In Column 1, Line 17, please delete "but" and insert therefor --out--.

In Column 5, Line 14, please delete "19a" and insert therefor --14a--

Respectfully submitted,


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APPARATUS AND METHOD FOR MOUNTING ELECTRONIC PARTS

Background of the Invention

Field of the Invention

5 This invention relates to an electronic parts mount apparatus and an electronic parts mount method for taking out an electronic part in wafer shape such as a semiconductor chip and mounting the electronic part on a board of a lead frame, etc.

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Description of the Related Art

 An electronic part cut out in wafer shape, such as a semiconductor chip, of electronic parts used with electronic machines hitherto has been taken out by a mount
15 apparatus including a dedicated taking out unit and mounted on a board of a lead frame, etc. In the dedicated unit, a transfer head for taking out a semiconductor chip moves up and down at a fixed taking out position and a semiconductor wafer is held so that the semiconductor wafer is
20 horizontally movable relative to the transfer head. The semiconductor wafer is moved in order, whereby one semiconductor chip at a time is taken out by the transfer head. The semiconductor chip to be taken out is registered to the transfer head by picking up an image of the
25 electronic part in wafer shape by a camera fixedly placed

detection result of the image recognition section 23.

The electronic parts mount apparatus is configured as described above. The electronic parts mount operation will be discussed with reference to FIGS. 4A, 4B, 5A, and 5B. In FIG. 4A, the board 2 is supplied to the board transport section 1 by the board supply section 3. A paste for bonding electronic parts is applied to the board 2 by the paste application section 4 and then is transported to the board positioning section between the Y-axis tables 5A and 5B and is positioned. After this, the transfer head 7 is moved to above the board 2 by the first X-axis table 6 and an image of the board 2 is picked up by the board recognition camera 9. Recognition processing of the image data provided by picking up an image of the board 2 is performed by the image recognition section 23, whereby the position of the board 2 is recognized.

At this time, the parts recognition camera 11 moved by the second X-axis table 10 is positioned above the wafer hold section 12 and picks up an image of a plurality of semiconductor chips 14a to be next taken out concurrently with picking up an image of the board 2 by the board recognition camera 9 (a step of image picking up). Recognition processing of the image data provided by picking up an image of the semiconductor chips 14a is performed by the image recognition section 23, whereby the positions of the semiconductor chips 14a to be next taken